



It takes a village?

# Cooperative Breeding



# 1. Shared intentionality

Coordination, reengagement

# 2. Cooperative breeding

Hominid evolution, alloparents, domestication

# 3. Ultrasociality

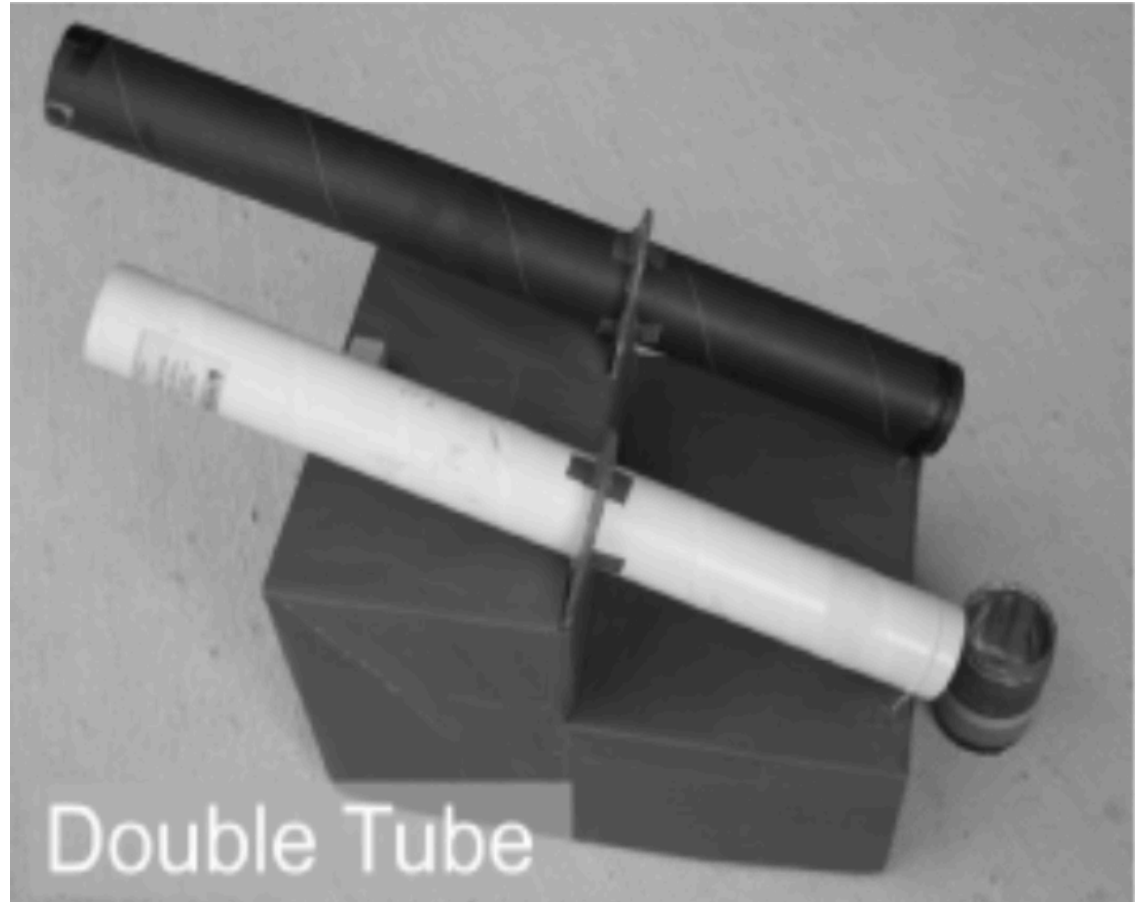
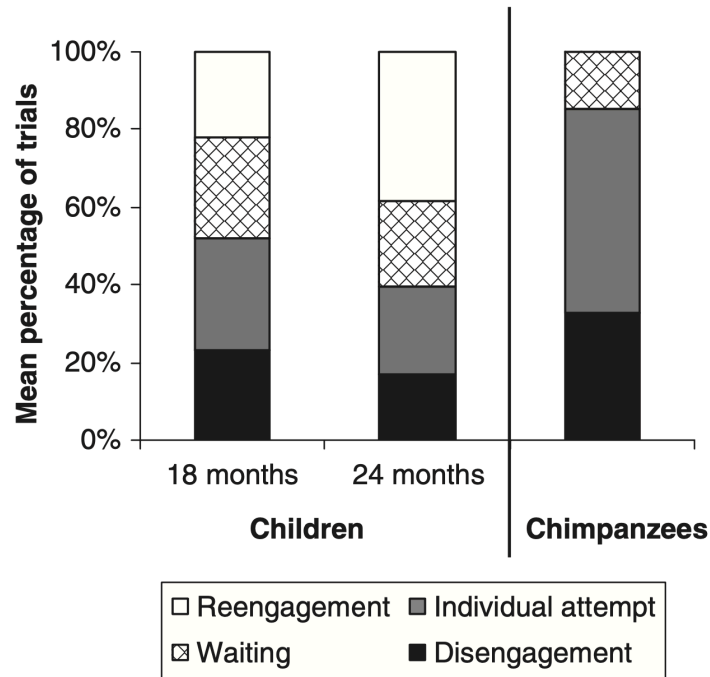
Cumulative cultural evolution, warfare

## Coordination



Chimpanzees coordinate toward a concrete goal

# Reengagement



Cooperative Activities in Young Children and Chimpanzees

Felix Warneken, Frances Chen, and Michael Tomasello  
*Max Planck Institute for Evolutionary Anthropology*

Human children are motivated not just by the goal but by cooperation itself

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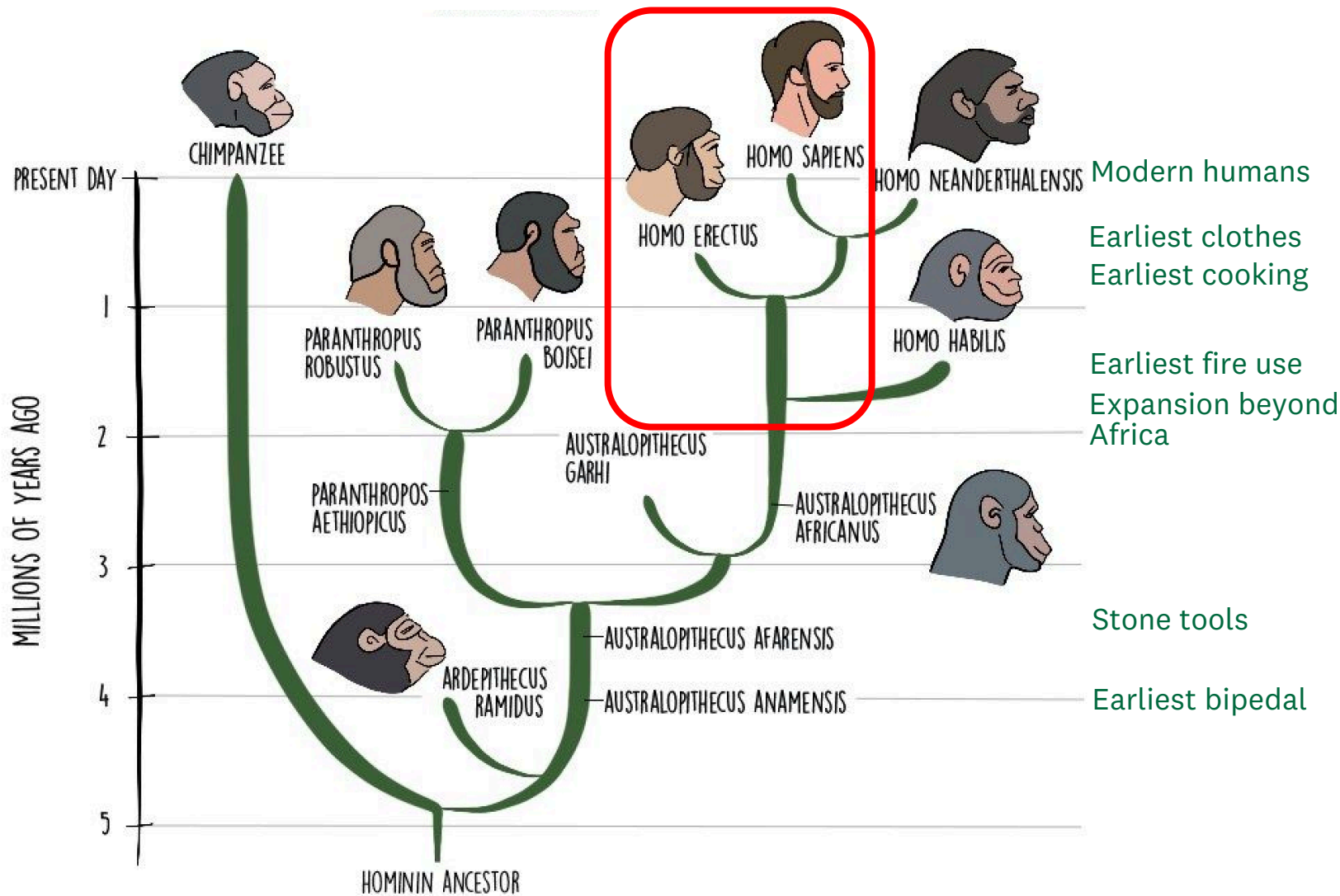
Hominid evolution, alloparents, domestication

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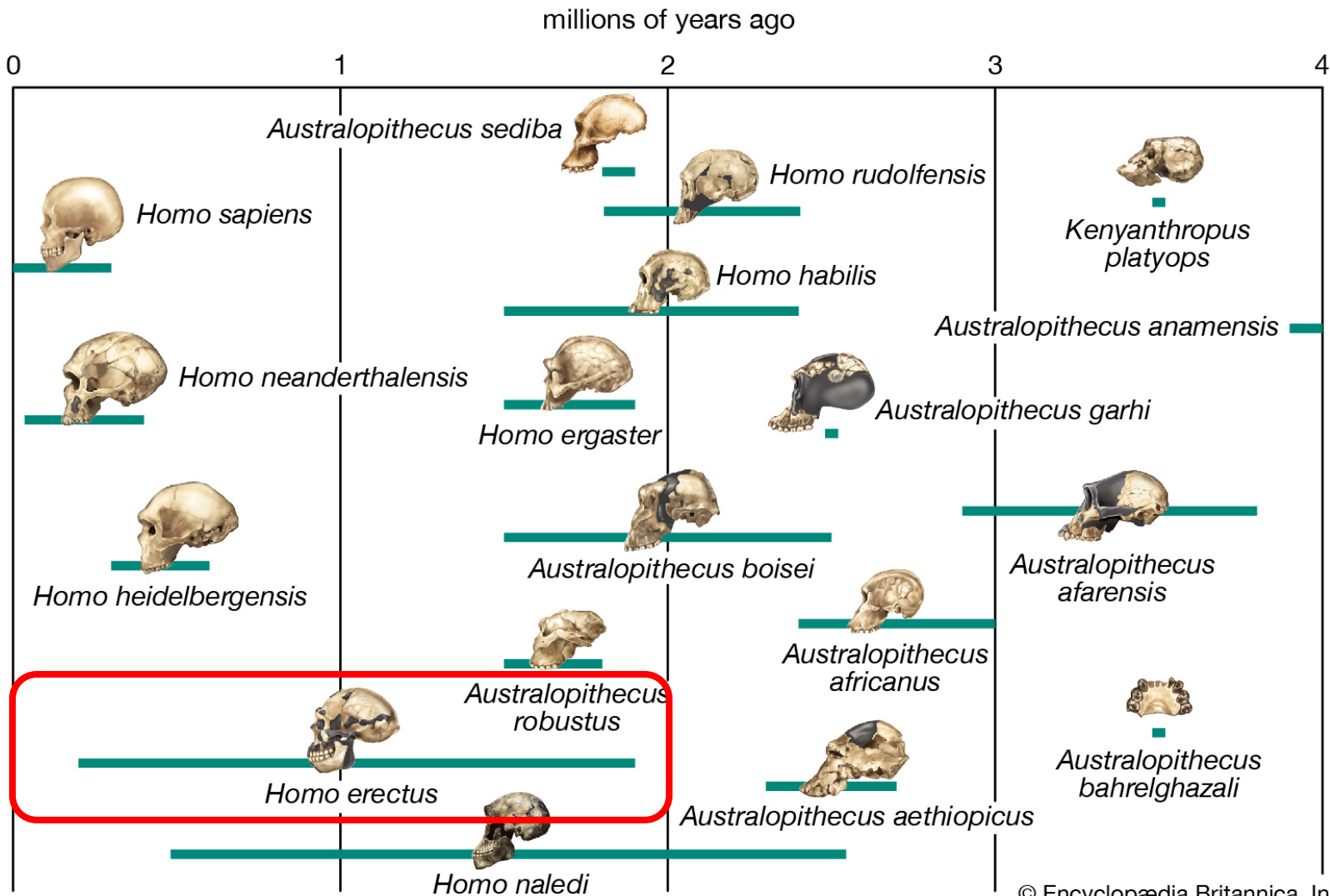
## Hominid evolution



H. erectus was the first hominin to migrate out of Africa and to cook food



## Human timeline



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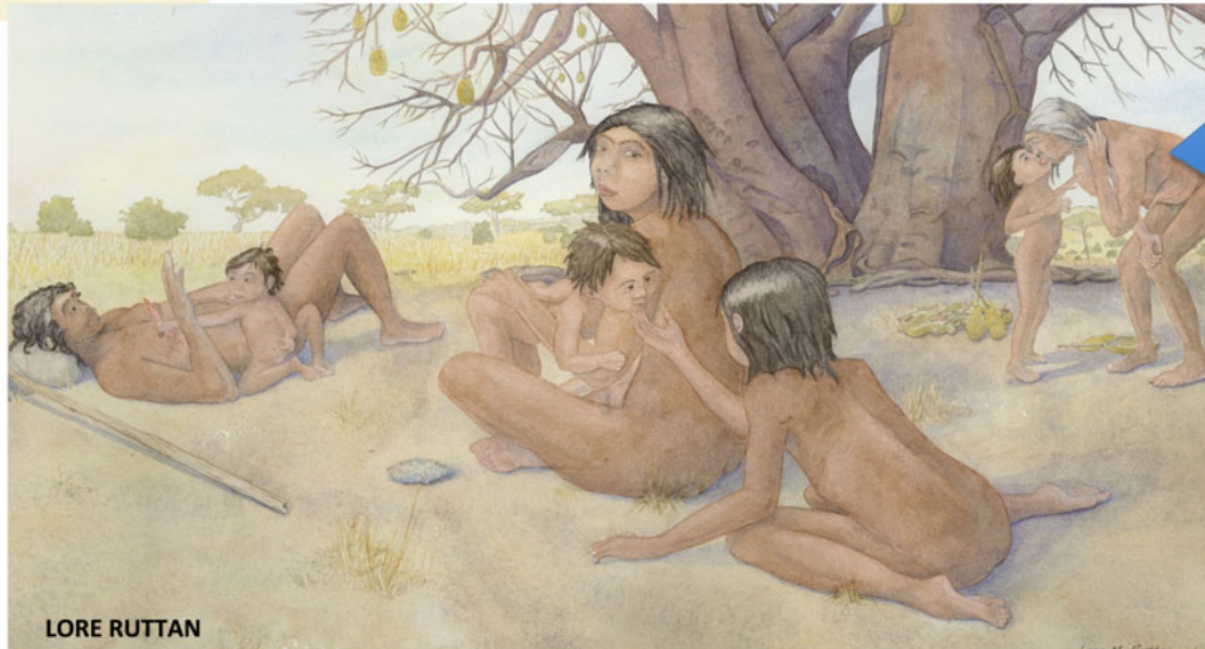
In terms of species survival, *H. erectus* was a huge success story



# Alloparents



What would happen if you took clever, manipulative, tool-using apes possessing rudimentary theory of mind and reared them in a novel context where infants had to rely on facultatively provided care and provisioning from mothers and allomothers...



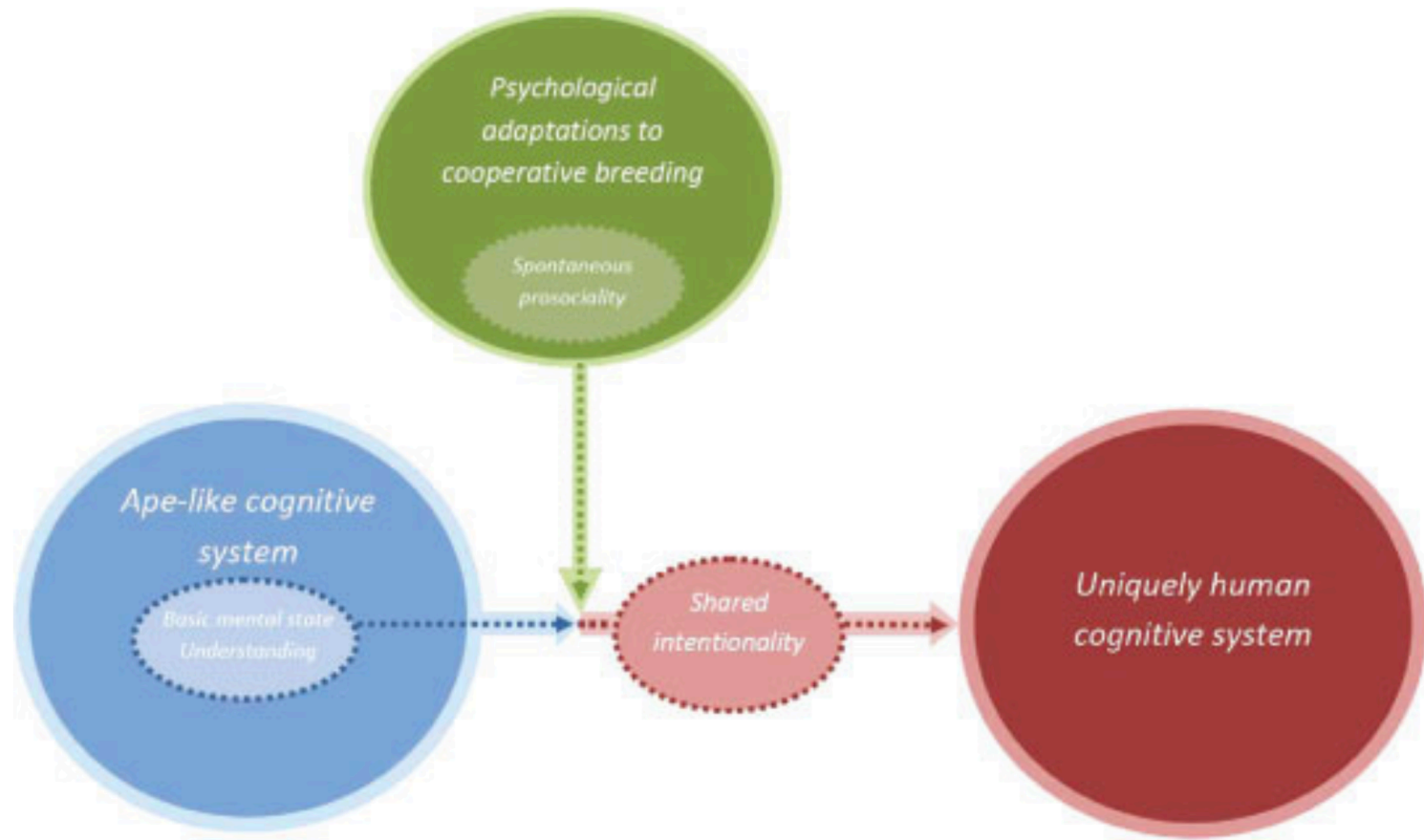
LORE RUTTAN

...while developing immatures learn to be more other-regarding, resulting in novel ape phenotypes? Over generations, directional social selection would favour those best equipped to ingratiate themselves with others.



By 2 Ma, hominin mothers increasingly relied on assistance from group members

# Alloparents

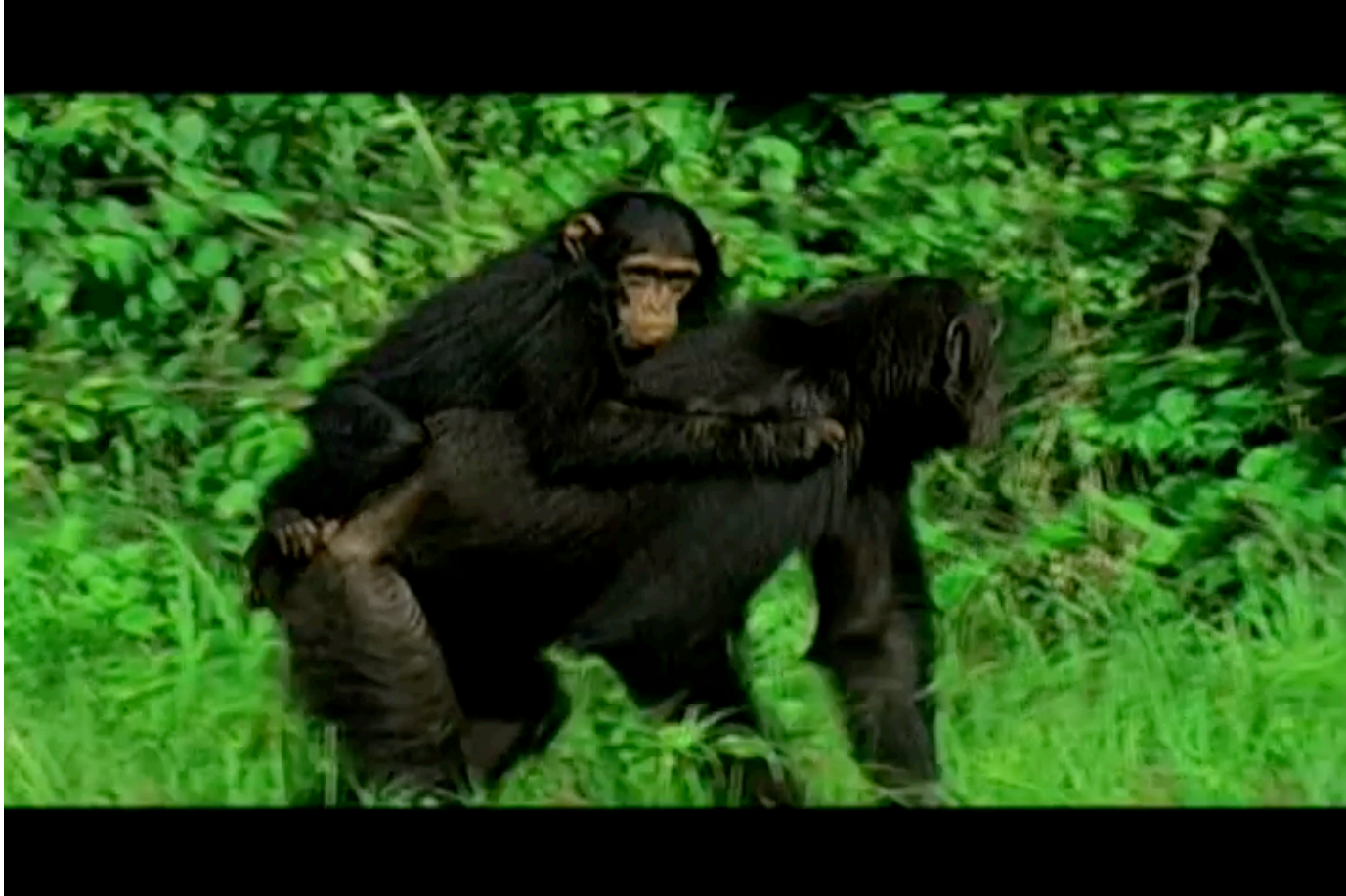


**Cooperative Breeding and Human Cognitive Evolution**

J. M. BURKART, S. B. HRDY, AND C. P. VAN SCHAİK

**A merging of ape-level cognition and breeding-related prosocial attitudes**

## Postpartum tolerance



**Chimpanzee mothers are the world to their infants**

## Postpartum tolerance



**Human mothers are much less protective and possessive of infants**

## Common marmosets



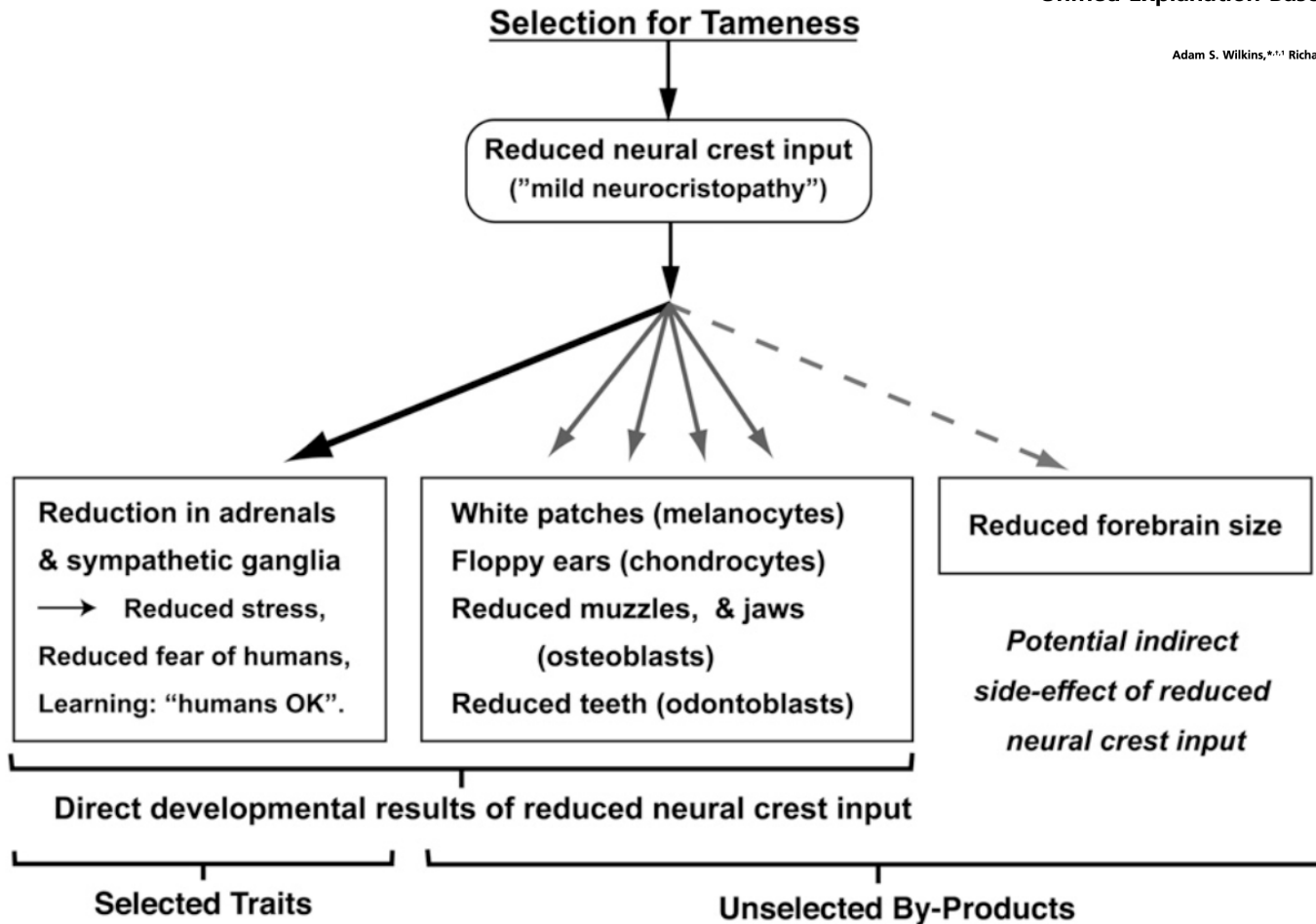
Figure 3. Common marmosets (*Callithrix jacchus*). A sexually mature helper watches how another adult processes an unusual food. Relaxed, close monitoring of each others' activities is not restricted to infant-caregiver dyads. It occurs in all dyad types and in a variety of contexts.

**Cooperative breeding is not a human specialization**

# Domestication

The “Domestication Syndrome” in Mammals: A Unified Explanation Based on Neural Crest Cell Behavior and Genetics

Adam S. Wilkins,<sup>\*,†,1</sup> Richard W. Wrangham,<sup>\*,†</sup> and W. Tecumseh Fitch<sup>1</sup>



Traits can arise as unselected by-products

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Coordination, reengagement

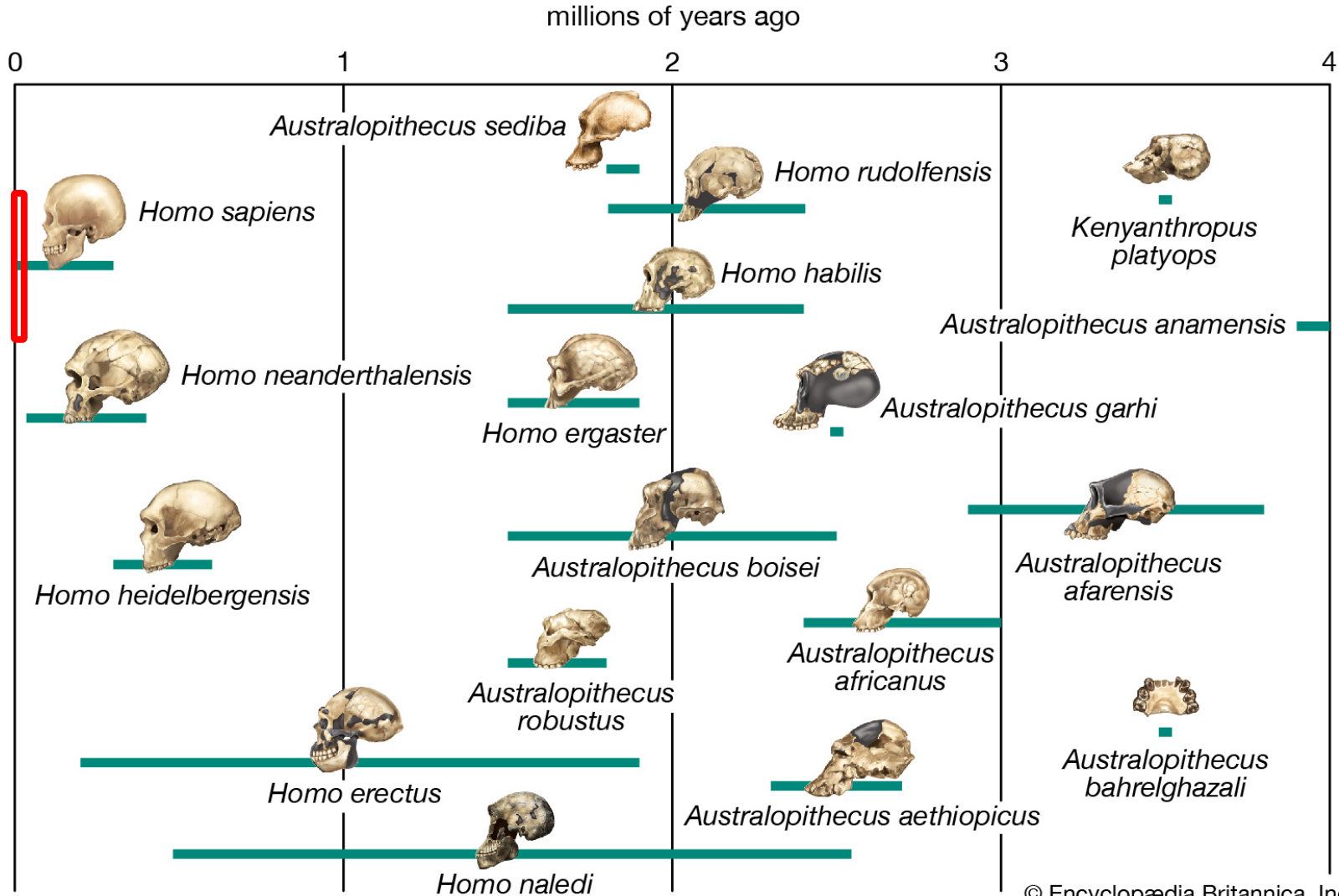
# 2. Cooperative breeding

Hominid evolution, alloparents, domestication

# 3. Ultrasociality

Cumulative cultural evolution, warfare

# Human timeline



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**Last 12,000 years, societies scaled up from small communities to vast states**



## Cumulative cultural evolution

Genetic evolutionary mechanisms, such as kin-based altruism and direct reciprocity, may be adequate to explain cooperation in other animals, but tackling human *ultrasociality* requires understanding our second system of inheritance—culture—and the ways that it has altered our psychology, suppressed our reactive aggression, enhanced our capacity for internalizing norms, and driven our genetic evolution in several ways.

*Annual Review of Psychology*

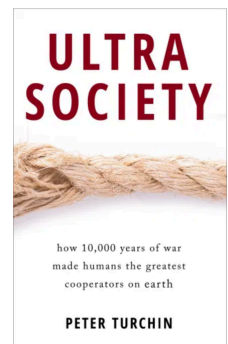
The Origins and Psychology of  
Human Cooperation

Joseph Henrich<sup>1</sup> and Michael Muthukrishna<sup>2</sup>

**Last 12,000 years, societies scaled up from small communities to vast states**

## The paradox of human warfare

Early humans were much more *egalitarian* than other primates, ruthlessly eliminating any upstart who wanted to become alpha male. But if human nature favors equality, how did the blood-soaked *god kings* of antiquity ever manage to claim their thrones? And how, over the course of thousands of years, did they vanish from the earth, swept away by a reborn spirit of human equality? Why is the story of human justice a chronicle of *millennia-long reversals*? Once again, the science points to just one explanation: *war* created the terrible majesty of kingship, and war obliterated it.



**Inter-group conflict boosts within-group cooperation and emphasis on equality**

- Apes in the line leading to the genus *Homo* could not have evolved unless alloparents had assisted with caring and provisioning offspring
- By 2 Ma, Darwinian social selection increasingly favored those best at monitoring the intentions of and appealing to non-kin caregivers
- Paradoxically, intergroup conflict in the form of warfare may have made us into an *ultrasocial* species during the last 12,000 years

- Mentalizing